

Having described the invention, I claim the following:

1. A tire parameter sensing system for sensing a parameter of a tire of a vehicle, the tire parameter sensing system comprising:

a power transmitting antenna that is actuatable for producing a magnetic field at a location of the tire;

a rim upon which the tire is mounted, the rim having a circumferential outer surface that is contacted by the tire when the tire is mounted on the rim, at least first and second magnetically conductive surface portions of the rim forming a drop well located within the outer surface, the first and second magnetically conductive surface portions being angled relative to one another; and

a tire-based unit for sensing a parameter of the tire and for providing an indication of the sensed parameter, a coil antenna of the tire-based unit being responsive to the magnetic field for providing energy to the tire-based unit, the coil antenna having a central axis,

the tire-based unit being mounted in the drop well of the rim so that the coil antenna is located adjacent to both the first and second magnetically conductive surface portions, the central axis of the coil antenna extending in a direction parallel to the first magnetically conductive surface portion and the first and second magnetically conductive surface portions guiding magnetic flux of the magnetic field to the coil antenna.

2. The tire parameter sensing system of claim 1 wherein the central axis of the coil antenna also extends in a direction parallel to the second magnetically conductive surface portion of the rim.

3. The tire parameter sensing system of claim 2 wherein the power transmitting antenna is oriented relative to the rim so that the magnetic flux of the magnetic field travels circumferentially around the rim in a direction parallel to the central axis of the coil antenna.

4. The tire parameter sensing system of claim 1 wherein the coil antenna is located immediately adjacent a union that connects the first and second magnetically conductive surface portions.

5. The tire parameter sensing system of claim 1 wherein the outer surface of the rim is an annular, radially outer surface of the rim and wherein the drop well extends radially inwardly, relative to an axis of the rim, from the outer surface.

6. The tire parameter sensing system of claim 1 wherein the tire-based unit in its entirety is located in the drop well and below the outer surface of the rim.

7. The tire parameter sensing system of claim 1 wherein the second magnetically conductive surface portion is located adjacent an end of the coil antenna, the coil antenna extending in a direction perpendicular to a circumference of the rim.

8. The tire parameter sensing system of claim 7 wherein the power transmitting antenna is oriented relative to the rim so that the magnetic flux of the magnetic field travels over the outer surface of the rim in a direction parallel to an axis of the rim and parallel to an axis of the coil antenna.

9. The tire parameter sensing system of claim 1 further including a vehicle-based unit that is operatively connected to a display, the indication of the sensed parameter that is provided by the tire-based unit being a tire parameter signal that is received by the vehicle-based unit, the vehicle-based unit, in response to receiving the tire parameter signal, actuating the display so as to provide an indication of the sense parameter.

10. A method for providing energy to a tire-based unit of a tire parameter sensing system of a vehicle, the tire-based unit being associated with a tire of the vehicle, the method comprising the steps of:

producing a magnetic field at a location of the tire;

mounting the tire upon a rim having a circumferential outer surface that is contacted by the tire and at least first and second

magnetically conductive surface portions that form a drop well in the outer surface of the rim, the first and second magnetically conductive surface portions being angled relative to one another; and

mounting the tire-based unit in the drop well of the rim so that a coil antenna of the tire-based unit is located adjacent to both the first and second magnetically conductive surface portions and so that a central axis of the coil antenna extends in a direction parallel to the first magnetically conductive surface portions and the first and second magnetically conductive coil portions guide magnetic flux of the magnetic field to the coil antenna.

11. The method of claim 10 wherein the step of mounting the tire-based unit in the drop well of the rim further includes the step of:

mounting the tire-based unit so that the central axis of the coil antenna also extends in a direction parallel to the second magnetically conductive surface portion of the rim.

12. The method of claim 11 further including the step of:

orienting the power transmitting antenna relative to the rim so that the magnetic flux of the magnetic field travels circumferentially around the rim in a direction parallel to the central axis of the coil antenna.

13. The method of claim 10 wherein the step of mounting the tire-based unit in the drop well of the rim further includes the step of:

mounting the tire-based unit so that the coil antenna is immediately adjacent a union of the first and second magnetically conductive surface portions.

14. The method of claim 10 wherein the step of mounting the tire-based unit in the drop well of the rim further includes the step of:

mounting the tire-based unit so that the second magnetically conductive surface portion is located adjacent an end of the coil antenna, the coil antenna extending in a direction perpendicular to a circumference of the rim.

15. The method of claim 14 further including the step of:

orienting the power transmitting antenna relative to the rim so that the magnetic flux of the magnetic field travels over the outer surface of the rim in a direction parallel to an axis of the rim and parallel to an axis of the coil antenna.